



## Course Syllabus

Franklin High School		2020-2021
<b>DIRECTIONS:</b> For each course, complete the syllabus and share with your evaluating/supervising administrator <b>as a pdf</b> ("File-download-PDF document") <b>by 9/28/20</b> . Syllabi will be posted on the FHS website under your name for the public to view.		
<b>Course Overview</b>		
<b>NOTE:</b> For core classes, all elements of this section (except for name and contact information) are the same.		
Course Title: NGSS Biology		
Instructor Name: Erin McCracken Ferro	Contact Info:emccrackenferro@pps.net	
Grade Level(s):11		
Credit Type: (i.e. "science", "elective") Science	# of credits per semester:1	
Prerequisites (if applicable): Passing grades for Grade 9 Physics, Grade 10 Chemistry recommended		
<p>General Course Description: Welcome to NGSS Biology. This course covers the foundational principles of modern life science as outlined in the Next Generation Science Standards (NGSS). We will learn the content and applications of Biology by using science and engineering practices utilized by professionals in STEM fields.</p> <p>Students will work in small teams to complete three major investigations during the course, contributing data to ongoing research projects.</p> <ol style="list-style-type: none"><li>1. Students will explore ecosystem health using arthropods as an indicator species.</li><li>2. Students will investigate natural selection through blue-green algae that live in extreme environments.</li><li>3. Students will collaborate to engineer a food system, and will measure the changes their choices make in efficiency of food production.</li></ol> <p>Additionally, there will be a focus on how we can utilize the tools of biology to solve problems identified at the local level - from air pollution to climate change - and how those local solutions can contribute to global progress on such issues.</p>		
<p><u>Prioritized National/State Standards:</u> We will address the NGSS performance expectations for Life Science and some of the performance expectations for Earth and Space Science as well as Engineering and Technology. For a more detailed look at the specific standards, see this short link: <a href="http://bit.ly/NGSS_Bio">http://bit.ly/NGSS_Bio</a></p> <p>The following headings provide a thematic overview of the standards for the year:</p> <ol style="list-style-type: none"><li>1) Structure and Function</li><li>2) Inheritance and Variation of Traits</li><li>3) Matter and Energy in Organisms and Ecosystems</li></ol>		



- 4) Interdependent Relationships in Ecosystems  
 5) Natural Selection and Evolution.

**Course Details**

*Learning Expectations*

Materials/Texts: All lessons and information will be in Canvas (<https://lms.pps.net/courses/48834>)  
 There is no textbook for this course.

Course Content and Schedule:

**Units of Study** This semester we will cover:

- Unit 1 - Ecosystems & Biodiversity
- Unit 2 - Biomolecules
- Unit 3 - Cells to Organisms
- Unit 4 - Genomics
- Unit 5 - Evolution
- Unit 6 - Matter, Energy, & Climate Change

Differentiation/accessibility strategies and supports (TAG, ELL, SpEd, other):

Consult with SpEd teacher for students pursuing a modified diploma

-

Collaboration time with ELL teachers

-

Extension options for TAG students

-

Optional: District Science Fair, Honors Credit

Safety issues and requirements (if applicable):

N/A

Classroom norms and expectations:

**Norms for Distance Learning:**

- Camera on and mic off when not talking (as works for you)
- Hand-raising (Add on & Physical)
- Be present (limit multi-tasking)
- Be prepared to collaborate and self reflect
- Step up, allow space for others (share your perspective, monitor air time)
- Listen for meaning rather than to respond
- Hold space for multiple perspectives & lived experiences
- No Judgment Zone - Different events impact people in different ways. We agree to listen to one another with a compassionate ear. We will listen for deeper understanding and we will remain curious.
- Offer understanding and grace in this unprecedented time

**Expectations:**

All voices are to be respected and heard in this class. Scientific discourse involves discussing concepts and ideas that often have no one correct answer, with many stakeholders who have firm views on what is the best course of action. Thus, we will practice discussing a variety of science topics throughout the school year.

All rules of student conduct outlined in the student handbook are in effect in this class. Pay particular attention to rules pertaining to the policies related to cell phones and academic dishonesty/plagiarism. Science is built upon the work of many others and citing your sources is one way to acknowledge their contribution to your growth and learning.

**Behavioral Expectations:**

At Franklin High School, in addition to following all school rules, we expect staff and students to:

**Strive to be...****Thoughtful**

We celebrate the diversity and recognize the varied learning needs of our peers  
We put time and effort into our work  
We are engaged in the classroom and learn bell-to-bell  
We process complex issues with care

**Respectful**

We respect the diverse learning needs of our peers.  
We follow directions and class norms.  
We do not use racist, sexist, or homophobic language of any kind.  
We keep distractions, such as electronic devices, put away during class time, unless otherwise directed.

**Organized**

We are present and on time for class.  
We bring all necessary materials.  
We keep track of assignments, deadlines, and activities.

**Neighborly**

We only leave class when we have a hall pass.  
We treat the learning environment with care.  
We clean up after ourselves.  
We help when we see a need.

**Generous**

We share our resources with each other.  
We offer a fresh start to staff and ourselves.  
We help each other when needed.

If problems arise as a result of disregard for behavioral expectations, these are the **consequences:**

1. Warning
2. Talk to you privately
3. Conference with you and school support team / Level 1 Report documentation
4. Call Home
5. If these steps do not resolve the problem, a conference with school administrator will be necessary / Level 2-3 Referral

*Evidence of Course Completion*

Assessment of Progress and Achievement:

**Performance Expectations for NGSS Biology:**

**1. Constructing Explanations and Communicating Scientific Information**

At the end of this class, students should be able to:

- a. explain scientific knowledge and the evidence supporting that scientific knowledge
- b. create or interpret scientific models, and connect the model to the evidence
- c. obtain, analyze and evaluate scientific information

**2. Asking Questions and Identifying Problems**

At the end of this class, students should be able to:

- a. explain a scientific question and the connection between that question and content in class
- b. formulate a testable hypothesis and make predictions
- c. explain the independent variable, dependent variable, and how to measure each
- d. explain an engineering problem and the criteria and constraints specific to that problem

**3. Analyzing and Interpreting Data and Designing Solutions**

At the end of this class, students should be able to:

- a. present data in tables, graphs and other relevant forms
- b. explain conclusions based on data through claim, evidence, reasoning
- c. evaluate whether the criteria and constraints of an engineering design challenge were met by the design proposed
- d. propose novel questions based on the results of an experiment

**4. Applications of Science in Society**

At the end of this class, students should be able to:

- a. explain the ways in which Biology is applied to solve problems and answer questions in the real world
- b. discuss and evaluate the ethical impacts of how Biology is applied to solve problems and answer questions
- c. document the work of others and sources of information used

Progress Reports/Report Cards (what a grade means):  
This class will be graded using standard A-F scoring.

90-100 A

80-89 B

70-79 C

60-69 D

Below 60 F

At the end of each semester (January and June), averages convert to letter grades determined by the following:

A	4.0-3.6
B	3.5-3.0
C	2.5-2.9
D	2.0-2.4
F	< 1.9

Career Related Learning Experience (CRLEs) and Essential Skills: N/A

#### **Communication with Parent/Guardian**

What methods are used to communicate curriculum, successes, concerns, etc.?  
Synergy, Canvas, email, calls to parent/guardian

#### **Personal Statement and other needed info**

My goal is to create a positive and supportive learning environment where you can be successful. I expect that we treat one another with patience and respect. I will do my best to communicate clearly and make the curriculum accessible to each and every one of you.

In return, I ask that you make an effort to be present and focused at synchronous class meetings. In addition, at asynchronous class times, I ask that you access Canvas to see what you are supposed to be doing for our class at that time. If you are unable to do so, email me!

#### **Erin L. McCracken Ferro: My Teaching Philosophy**

- I believe that everyone can learn science.
- I am dedicated to making education fun, engaging, and relevant to students' everyday lives.
- I believe in hands-on, inquiry-based learning that encourages students to apply knowledge to new ideas, questions that they find personally interesting, and everyday life.
- I believe in differentiation, or allowing students to learn important topics in different ways to strengthen understanding. I allow students many options to demonstrate their knowledge of important concepts.

- I believe in fostering collaboration between students through teamwork. I also believe in the importance of connecting with the community through service learning and project based learning experiences.
- I believe in reflection and deep thinking about ideas in order to make important connections to other subjects and to everyday experiences outside the classroom.
- I believe that teaching students to think critically about issues and news in our society is an essential skill in a modern world that relies heavily on technology and scientific innovation.
- Finally, I believe in creating a safe, caring, respectful, & culturally aware classroom community through open communication and dialogue that will empower students to make good choices.

**As a teacher, I will:**

- Show respect for each child & for their family.
- Make efficient use of learning time.
- Provide a safe and comfortable environment that's conducive to learning.
- Help each child grow to his or her fullest potential.
- Provide meaningful & appropriate learning activities.
- Enforce school & classroom rules fairly & consistently.
- Supply students & parents with clear evaluations of progress & achievement.
- Demonstrate professional behavior and a positive attitude.